

ABSTRACT OF THE DISCLOSURE

A second stage external jet nozzle mixer (20) includes identically formed lobes which equal in number the lobes of the first stage internal mixer. The external mixer works with the internal mixer, and furthers the mixing of the jet engine internal bypass flow with the internal jet engine core flow. This mixing levels the disparate flow velocities attendant with the jet engine exhaust, reduces the peak velocities from the jet engine core and increases the lower bypass velocities of the jet engine internal bypass flow. The lobes include complex curvatures that greatly enhance mixing of the gases and ambient cooling air, and thereby reduce noise. At the lobe terminus, the lobe dimensional characteristics may be adjusted to thereby adjust the total terminus area to achieve a match to a jet engine to cause that jet engine to run at a determined RPM and noise level. Noise attenuation may also be adjusted by changing lobe dimensions. Prior existing second stage exhaust jet nozzle mixers may be retrofitted to allow alteration of their total terminus area by employing the disclosed device and method.